

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



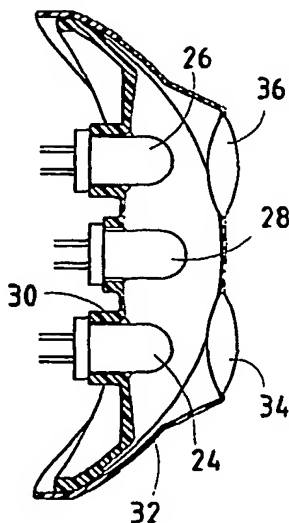
(43) International Publication Date
8 January 2004 (08.01.2004)

PCT

(10) International Publication Number
WO 2004/003428 A1

- (51) International Patent Classification⁷: **F21L 4/02**, F21V 5/04, F21Y 101/02
- (21) International Application Number: **PCT/US2003/019385**
- (22) International Filing Date: 20 June 2003 (20.06.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/390,245 20 June 2002 (20.06.2002) US
- (71) Applicant (for all designated States except US): **EVEREADY BATTERY COMPANY, INC.** [US/US]; 25225 Detroit Road, P.O. Box 450777, Westlake, OH 44145 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **ALESSIO, David, J.** [US/US]; 279 North Woodhill Drive, Amherst, OH 44001 (US).
- (74) Agent: **FRASER, Stewart, A.**; Eveready Battery Company, Inc., 25225 Detroit Road, P.O. Box 450777, Westlake, OH 44145 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: LED LIGHTING DEVICE



(57) **Abstract:** A lighting device (10) is provided which uses multiple LEDs to illuminate a target area. The lighting device includes first and second light emitting diodes (24, 26) spaced apart from each other. A first convex magnifier lens (34) is arranged in a light path of the first light emitting diode (24) for focusing light onto a target area. A second convex magnifier lens (36) is arranged in a light path of the second light emitting diode (26) for focusing light onto the same target area. The first and second magnifier lenses (34, 36) are supported relative to the first and second light emitting diodes (24, 26), respectively, by a cover (32).

WO 2004/003428 A1